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ABSTRACT

This paper, commissioned for the development of the national report, "National Excellence: A Case for Developing America's Talent," provides historical background on issues in gifted education, together with ideas and practices from the special educational strategies now in use for gifted students. The report focuses on the nature of superior intelligence, the general school adaptations for these children, current and unresolved issues in the education of the gifted, and specific policy issues in gifted education. Historical information describing how early cultures addressed or failed to address the needs of gifted children is offered. A major problem is seen to be the ambivalent feelings toward gifted children traditionally seen in the American society. Various definitions of giftedness are discussed, as are traits that characterize gifted children. Specific current issues addressed include the following: (1) educational reform; (2) creativity; (3) underserved populations (cultural differences, gifted girls, and gifted students with disabilities); (4) accountability; and (5) equity versus excellence. Future research is urged in such areas as understanding intellectual processes, assessing educational strategies for gifted students, and information processing. A table summarizes federal policy and legislation regarding the gifted since 1958. (Contains 95 references.) (DB)

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Current and Historical Thinking on Education for Gifted and Talented Students

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The purpose of this paper is to provide some historical background on issues in gifted education, together with some current ideas and practices from the special educational strategies now in use for gifted students. It is hoped that this information will inform policymakers and interested parties about the need for differentiated programs for gifted students.

This report will focus on the nature of superior intelligence, the general school adaptations for these children, current and unresolved issues in the education of the gifted, and specific policy issues in gifted education. Some future research directions are also presented.

Why Should We Be Concerned?

How gifted students are defined, how they are educated, and how society receives them, varies considerably across time and across differing cultures. How these students are educated today is dependent, in part, upon values and conceptualizations that may be generations old, but are still alive in the minds of educators and decision-makers. In order to understand the programs of today, we must reflect on the values of yesteryear.

Special educational programs for children with special needs have been well-accepted by the American public as an essential part of the educational mandate of a free and appropriate education for all children since the 1960s. For the child with special learning problems, with mental retardation, or with other disabilities, there is a complex system of special education that directs financial help to local school districts from both the state and federal government.

Do gifted children fit under the definition of children with special needs? Why, in fact, should we be paying attention to a group of children who are already performing above the average in school? There is a touch of enlightened self-interest in such support, since we have substantial evidence that many of these students will become the leaders of the future in medicine, law, the sciences, business, the arts, etc. It is in our own family and societal interest to ensure a strong education for them (Terman & Oden, 1959; Bloom, 1985).

History

Throughout recorded history, there have been instances of cultures paying special attention to children who revealed special talents. The early Greeks, Romans, Chinese, and Japanese all attempted to nurture outstanding talents for the good of the state. Plato, for example, wished to place the leadership of his ideal state in the hands of philosopher-kings who would qualify for their high status by possessing the greatest measure of rational intelligence (Tannenbaum, 1983).

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One of the earlier approaches to shaping talent was the apprentice model, extensively used in art, music, and the dance. This approach was used widely in the Renaissance and post-Renaissance period as the appropriate method for nurturing revealed talent. The sponsorship of talented persons, such as Mozart, by the crown or by noblemen was a standard source of support and encouragement.

The specific study of giftedness and its nurture has occurred in relatively modern times, and organized attempts to stimulate these abilities through education were developed even later. Francis Galton has generally been credited with the first study on the transmission of high ability in families in England in the nineteenth century with the publication of *Hereditary Genius*, a study of famous English families. Terman (1925) and Hollingworth (1942) conducted the first serious studies of high-ability youngsters in the United States. The Terman Longitudinal Study (Terman & Oden, 1947; Terman & Oden, 1959) has been particularly influential in dispelling a series of myths about gifted students. Terman's sample of about 1400 students, studied throughout their life span, demonstrated that gifted children were not, as a group, physically weak, emotionally disturbed, or socially isolated, as had been previously suggested.

Although evidence of educational concern can be found in the establishment of special educational programs in St. Louis in the 1880s and Cleveland in the 1930s, the first widespread attention to the special needs of gifted students in public schools probably can be identified as beginning in the Sputnik era of the late 1950s (Tannenbaum, 1983). The challenge provided by the Soviets to the United States' superiority in scientific fields stimulated extensive curriculum reform through substantial investments by the National Science Foundation and, later, by the U.S. Office of Education (Goodlad, 1964). Although such efforts were not exclusively directed toward gifted students, the emphasis of major themes in these curricula, and in providing actual practice in doing research, fits well into the educational needs of gifted students (Gallagher, 1985).

The emphasis on the education of gifted students went into a slump from the mid 1960s to 1970s when public attention and the attention of educators shifted to issues of student equity. However, there was continued interest in the education of gifted students, largely due to the recognition of the need for a large and continuing supply of highly talented individuals to maintain U.S. leadership in business, industry, higher education, the sciences, etc., into the 21st century (America 2000).

Despite this attention, the attitude toward gifted students at a personal and societal level has often been one of ambivalence, in both the educational setting and in society at large. We may love the creative products of their mental processes but still feel the sting of envy when we observe some persons doing, with apparent ease, what is so difficult for others to accomplish. Such conflict between the public interest and personal feelings has been felt in many societies and has been a barrier to the education of gifted and talented students (Gallagher, 1984).

Definition

There are numerous competing definitions of the gifted and talented abroad in education today (see Sternberg & Davidson, 1986). Many of these definitions are theoretical in nature and difficult to transform into educational practice. Two definitions, representing differing points of view, currently seem to have the most influence over educational practice. One focuses upon individuals with outstanding ability and potential; the other definition emphasizes demonstrated productivity and creativity.

Representative of the "ability" concept is the Marland definition, given below, which emerged from a national review of the issue (Marland, 1972). Although there are reasons to believe that this definition will change as new knowledge about intellectual development is established and accepted, the Marland Report reflected state by state interest in the issue as defined at the time:

> Gifted and talented children are identified by professionally qualified persons as those who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas: 1) General intellectual ability; 2) Specific academic aptitude; 3) Creative or productive thinking; 4) Leadership ability; 5) Visual and performing arts; and 6) Psychomotor ability.

The sixth ability, psychomotor, was later dropped from the list, since many felt it referred to athletic ability, which was already well-supported in our society.

The "productivity" concept is represented by Renzulli (1986). In contrast to Marland, Renzulle presented a three-ring conception of giftedness, in which a combination of task commitment, above-average ability, and creativity are necessary to produce gifted or productive performance. Renzulli prefers to discuss "gifted behaviors" rather than "gifted students" and, as a consequence, has devised the following definition:

> Gifted behavior reflects an interaction among three basic clusters of human traits—above-average general or specific abilities, high levels of task commitment, and high levels of creativity. Persons who manifest, or are capable of developing, an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs (Renzulli & Reis, 1986, p. 218).

Renzulli also insists that these behaviors be applied to potentially valuable areas of human performance.

Both definitions recognize the need to extend the regular educational program in order to provide adequate stimulation, whether for gifted students or for students manifesting gifted behaviors, and each leaves considerable leeway in terms of how one actually identifies a student or performance, in a concrete fashion, so as to certify a gifted student or gifted performance. It is in the actual attempts to identify such students or behaviors that much of the current argument and discussion about giftedness takes place.

What Is Superior Intelligence?

From World War II until the mid-1960s, there appeared to be no serious challenge to the concept that "intelligence is what an intelligence test measures." This circular, and generally non-productive, approach to understanding intelligence has been replaced, during the last couple of decades, by a series of attempts to explore how the developing child comprehends information, stores it, scans the stored information for relevant data, and makes decisions or solves problems. Many of these models were based upon research on artificial intelligence and information-processing by Sternberg (1985); Gardner (1983); Simon (1978, 1979); and Borkowski & Kurtz (1987). Such models promise a greater understanding of how information is received, stored, and retrieved—though it still might not be clear from such models why one child is gifted and another child is mentally retarded. Nevertheless, a better understanding of general intellectual functioning can be of special interest to educators who work with gifted students.

An explanation for the long predominance of the IQ test as a device for indicating high intelligence is that it largely did what the schools asked of it. These IQ tests, many of which are heavily weighted with vocabulary, simple reasoning, and analogy questions, predicted very well which students would learn rapidly and which would learn more slowly than their classmates. This was particularly true since memory, association, and rea-

soning—the characteristics measured by the IQ test—were also the abilities predominantly demanded of students in the classroom.

Is the Gifted Child Qualitatively Different in Intelligence?

Robinson (1977) has pointed out that it is often not *what* the gifted child does that is so remarkable, but rather *when* in the developmental process he or she does it. For example, the child who plays competitive chess at the age of five or six will naturally be seen as gifted but is doing only what other children might do at the age of twelve or thirteen. The basic question of interest to educators is, "Can gifted children accomplish some mental tasks that other students cannot perform at all?" If the answer is "Yes," then the stimulation of such special abilities becomes a major responsibility of the educator.

Rogers (1986), in a review of the existing literature, suggested not only that gifted students are quantitatively different from the average student in their intellectual performance but also that these *quantitative* differences may result in *qualitatively* different performance! For example, a student who masters calculus can achieve levels of problem-solving that are not available to students who have not mastered, or had the opportunity to master, calculus. There is a point, therefore, where quantitative differences seem to result in qualitatively different performance.

The Role of the Family in Promoting Giftedness

It has long been recognized that the social envelope in which gifted students reside has a great deal to do with shaping the interests, educational motivation, and even the full realization of their intellectual potential. One recent investigation, done by Bloom and his colleagues (1985), involved a retrospective analysis of families of world-class performers in the arts and sciences. In this group, Bloom found a consistent history of strong and early family identification and promotion of the talents of the child. The parents, in many cases, sought special instruction for these students. There were many instances of children displaying their talents in public performances which reinforced the children's interest in continuing the often difficult practice of their talents. Other reviews of the literature (Olszewski, Kulieke, & Buescher, 1987) confirm that parents of gifted students tend to stress the importance of academic achievement, hard work, and the full development of one's talents.

What is not always commonly recognized is that the converse of great attention and encouragement of talent can result in sizeable negative consequences for talent development. In families where there is a lack of interest in intellectual development, or where the parents are not able to provide either the resources or the intensity of interest and encouragement, it is likely that even outstanding talent will remain substantially underdeveloped. Therefore, in groups where economic disadvantage is a pattern—where there is a surplus of poverty, divorce, one-parent families, etc.—we would expect a lesser percentage of such students to reach the full realization of their talents—a sad event for the child, and a potential tragedy for the society (Maker & Schiever, 1989).

Gifted Averages or Gifted Individuals?

There are two general strategies for attempting to characterize a subgroup of the population such as "gifted students." One is to report how this group differs from other groups in the society on the basis of the mean or average performance of the two groups; the other is to report the range of characteristics in this special population. Such group comparisons leads to statements such as, "Gifted students tend to be more physically able, socially popular, and emotionally stable, than average students." Such statements, reflecting averages, ignore or omit information about the wide

range or variation of performance *within* the subgroup of gifted students. We can have, at one and the same time, a statement that gifted students are more emotionally stable than the average student together with significant reports of teen suicides or emotional maladjustment in gifted students (Delisle, 1990; Cornell, Callahan, & Loyd, 1991).

If we have a concern for the individual development of each child, then it is the range, or *variation*, that also needs special attention. We can say, with perfect validity, that gifted males, as a group, perform better in mathematics than gifted females. Such a statement, however, tends to ignore the also observable fact that many gifted girls can outperform the "average gifted boy" in mathematics. Also ignored is the fact that many gifted boys will fall below the average of gifted girls in mathematics. Another example of averages vs. variations is that the literature on student acceleration is highly positive when group results are considered. One can still find, however, individual instances of a student who was accelerated and did not achieve or who was not emotionally well-adjusted (Gallagher, 1985; Davis & Rimm, 1989). If we are making educational decisions or constructing educational policy based upon the information available, then we need to have a clear portrait of the range or *variation* within the group, as well as a comparison of averages of this group with others.

School Adaptations for the Gifted Child

The accumulated evidence on the characteristics of gifted students provides the basis for the differentiated program elements noted below. Gifted students have advanced, academically, far beyond their age peers and are often bored and unproductive in the normal school setting (Galbraith, 1985). Some change, or school adaptation, that allows these students to interact with each other—to be challenged by material at their developmental level—and to acquire skills useful in independent learning is being sought by educators (Passow, 1982). Over the past few decades, a wide variety of changes, or adaptations to the general program of the schools, have been made to try to meet the special needs of gifted students. Gallagher (1985) divided these adaptations into three major areas, in order to discuss them more thoroughly: *the learning environment*, *curriculum content*, and *skills mastery*. These adaptations, however, often interact and are combined with each other in active programs.

Learning Environment

The variety of special environments created for the gifted (e.g., resource rooms, teacher consultants, special classes, magnet schools, summer programs, Saturday programs, etc.) tend to distract attention from the two common purposes for such changes. First, there is a desire to bring together pupils of similar ability so that instruction can be pitched at the appropriate conceptual level for the student, and also so that the students with special abilities can stimulate each other. The second major reason is to place them with competent staff or outside personnel who can continue to challenge them intellectually and academically.

One of the interesting developments during the last decade has been the development of residential schools for talented students in mathematics and science. Beginning with the North Carolina School of Science and Math, in 1978, ten states have established such programs, and more states are planning such schools.

Changes such as resource rooms or special classes have the potential for creating political difficulties to educational administrators since these adaptations essentially impact all of the students and teachers in the school. Current evidence suggests that learning environment changes alone, unless the curriculum or skills to be mastered are also changed, does not yield impressive gains (Kulik & Kulik, 1991).

Student Acceleration

One of the earliest devices in educational adaptation for gifted students was to move the student

more rapidly through the school program. The potential virtues and dangers of such acceleration have been debated for the past six decades. The desire to reduce the duration of an educational program which, for some gifted students, can extend to a quarter of a century or more is understandable. If an educational program can be reduced one, two, or more years from the extended time for career preparation, would it not be to the benefit of the student, family, and society to do so?

Yet, student acceleration has neither been a popular nor heavily used device in the educational plans for gifted students (Clark, 1989; Van Tassel-Baska, 1986). There have been many fears raised about possible negative consequences. Southern, Jones, & Fiscus (1989) have recently polled over 1,200 educational practitioners on this question and found a substantial body of opinion concerned about possible social problems for such accelerated students; the possibility of extra stress caused by advancement; the possible loss of desirable childhood experiences; and the availability of other, more desirable, strategies (e.g., enrichment). In contrast to these concerns, the available literature on this topic reports strongly favorable outcomes of student acceleration (Gallagher, 1991), and it appears that many of the fears noted above are unfounded in the majority of cases (see Averages v. Individuals).

Content Differentiation

As noted above, changing the learning environment without changing the content of lessons seems nonproductive and leads to the clarion call of many gifted students that "school is boring." Can just any additional information serve the purpose of educating gifted students? Does teaching the physics of "chaos" equate with the history of pingpong? Obviously, some curricula content seems to serve our educational purposes for gifted students better than others.

Gallagher (1985) has identified four major ways in which curricula content has been modified to meet the special needs of gifted students. These categories are *acceleration*, *enrichment*, *sophistication*, and *novelty*.

Content Acceleration refers to the presentation, to gifted students, of curricula that was intended for older students. In this way, algebra and geometry can be presented to gifted students still in the elementary grades. There has been substantial demonstration of the ability of advanced students to master such a program. It has been shown that the early study of calculus allows the student to address a much more complex set of problems in biology and chemistry than can be mastered without calculus (Stanley & Benbow, 1986).

One of the organized efforts to provide systematically more challenging material to gifted students at an earlier age has been the Study of Mathematically Precocious Youth (SMPY). The original purpose of the project was to find students who reasoned very well in mathematics before the age of 13 and provide them with special accelerative opportunities so that they could move ahead in mathematics (Stanley, 1991). Some of these advanced students entered college early, others were given special experiences through curricular flexibility at high school as well as out-of-school experiences. This emphasis on identification and stimulation of outstanding talent has been adopted by a number of universities (e.g., Northwestern, Duke, Denver, etc.), and SMPY youth are reported to be successful in international competitions, Westinghouse Talent Searches, etc. (Stanley, 1991).

Content Enrichment refers to the variety of extra lessons or assignments used to elaborate the richness of understanding the student has of the existing curriculum goals. In this approach, the gifted child is kept mainly in the regular classroom, and content enrichment is used to extend the regular program (Parke, 1989). While the rest of the class is studying the Western Movement across the early United States, the gifted student could be doing a project on the diaries of wagon-train members or the

special perspective of Native Americans on the influx of settlers. Content enrichment gives gifted students material designed to broaden their understanding within the general educational goals.

Content Sophistication refers to attempts to challenge gifted students to learn the more complex and sophisticated information from the curriculum that the average student might not be able to master. Such an approach is most easily utilized in special class or resource room settings where the teacher can instruct a group of gifted students at a higher level without fear of leaving other, less rapidly developing students behind.

Examples of content differentiation of sophistication would be to take major social trends as proposed by Naisbitt (1982), such as the migration of business from North to South, and think about the consequences that stem from that move, or to focus on a new system of ideas such as the physics of chaos and what the implication of these ideas might be. Both examples require a wealth of prior knowledge—which gifted students may have but other students may not have.

Content Novelty refers to curriculum efforts that present content that is not covered in traditional school curriculum. Topics focusing on cross-disciplinary areas, such as the impact of technology on American society or the demographics of poverty, would be examples of such content-topics not traditionally dealt with in the regular curriculum but which may have special meaning for the gifted student who generally likes to tie apparently unrelated facts together. It is considered important for gifted students to reflect on the linkage between bodies of knowledge so that they are aware of the potential impacts of one field on another (e.g., the effects of the VCR on social patterns of youth) and reflect on what might be done to forestall possible negative consequences.

Skills Mastery

One of the tools that educators of gifted students have tried to provide this special population over the last two decades has been cognitive skills that increase the ability of gifted students to think productively (Bloom et al., 1956). Much of that work has focused upon the stimulation of divergent thinking and increasing the fluency, flexibility, and originality of ideas (e.g., Meeker, 1976; Guilford, 1967).

Direct attempts have been made to instruct students in the use of the creative problem-solving model (Parnes, 1981) or problem-solving strategies through the Schoolwide Enrichment Model (Renzulli & Reis, 1986). Additional stimulation in thinking has been fostered by student team competitions in such programs as the Odyssey of the Mind, Future Problem Solving (Torrance & Torrance, 1978; Crabbe, 1982), and models of creative thinking (Treffinger, 1991).

Whether the application of these strategies lead to an increase in educational attainment or skills and to a more creative adult are unanswered questions. There is a substantial body of knowledge reporting that creative individuals, as adults, differ in a number of personality traits from average adults. The most outstanding of these traits are the willingness to take risks, a strong ego that can go against the social tide, and a persistence and commitment to a special area of interest (Feldhusen & Treffinger, 1980).

The variety of attempts to instruct gifted students in skills that can enhance their creativity, their problem-solving abilities, and their problem-finding abilities will, almost surely, continue and increase. But we might expect to hear increased calls for accountability for such programs to prove that they not only increase these thinking skills in isolation, but that such increases also lead to demonstrably superior performance in real-life tasks.

Current Issues in Gifted Education

There are an impressive number of issues that can be identified as affecting the education of gifted students, either directly or as an unintended

consequence of striving for other educational goals. The issues listed here represent the author's attempt to identify the most critical topics of current concern in the field of gifted and talented education.

Issue: "Dumbing Down" School Programs

One of the current trends which seems to compound the problems that gifted students face in finding an adequate challenge for their abilities in school is a process that has been referred to as "dumbing down" the curriculum (Renzulli & Reis, 1991). In this "dumbing down" process, the textbooks for a grade level are written in overly-simplified terms and ideas are presented in a simplistic way, even for the average students of that age group. Kirst, for example (1982), found no textbook publisher ready to provide a textbook that would challenge the top one-third of students.

The curriculum, which is often based on the textbooks, is also "dumbed down" to make an already conceptually easy set of lessons even more simple! Unless the teacher provides alternative reading materials of adequate complexity, the gifted student is likely to be extremely bored and remain unchallenged by such simple texts.

The reason for such simplifications in the textbooks seems related to the process of textbook approval in which states or local communities may decide upon an approved list of textbooks at any given level. The publisher is engaged in an attempt to make the material so elementary in nature that even the slowest learning student would be able to grasp the content. The hope is that this will cause the textbook committees to react favorably. However, this process results in a serious "dumbing down" of content material, compounds the boredom and frustration of gifted students looking for challenge and intellectual adventure, and affects their performance.

In a recent study of the International Association of Educational Achievement (IEA), Renzulli and Reis (1991) reported, "The most able U.S. students scored the lowest of all these countries (Hungary, Scotland, Canada, Finland, Sweden, New Zealand, Japan, Belgium, England, and Israel). Average Japanese students achieved higher than the top 5 percent of the U.S. students in college preparatory mathematics" (p.27).

Issue: Educational Reform

The generally poor performance of students has largely been considered a school problem, rather than a societal one, and has generated a major and continuing phobic dissatisfaction with the performance of American schools. Thus, one of the major movements in education over the past decade has been a series of attempts to build reform elements into the American educational enterprise. These reforms would involve changing both structural and programmatic emphases. However, apart from the general merit of such reform elements as Cooperative Learning, or the Middle Schools Movement, or Accountability, there is the additional issue of how these reforms integrate with the program needs of gifted students (Gallagher, 1991; Renzulli & Reis, 1991).

The proponents of the process of *cooperative learning* differ somewhat among themselves about precisely how the concept is to be implemented in the school system (Slavin, 1990a; Johnson & Johnson, 1990; Kagan, 1988). Slavin, for example, emphasizes two essential features in his version of cooperative learning. The first is a *group goal*, or positive interdependence, in which the cooperative groups of students work together to earn recognition (grades, rewards, etc). The second is *individual accountability* in which the group's success depends on the individual learning and performance of each group member. Slavin (1990) strongly recommends the formation of heterogeneous groups by ability in the classroom, with the possible exception of mathematics. Robinson (1990), however, has pointed out three specific problems with cooperative learning as it relates to gifted students:

1) Cooperative learning will likely limit instruction to grade-level materials to account for either average or slow-learning students;

2) Cooperative learning will be presented at the pace of the slowest of the learners in the group; and

3) Cooperative learning will be evaluated on mastery of basic skills rather than on more sophisticated concepts.

Renzulli and Reis (1991) have pointed out the direct concern of many persons in gifted education about the overall impact of cooperative learning when these small groups are heterogeneous in ability and where, inevitably, the gifted students will become tutors to the slow learners in the group, since the entire group's performance will be judged by the individual scores on some outcome measure.

> You don't produce future Thomas Edisons or Marie Curies by forcing them to spend large amounts of their science and mathematics classes tutoring students who don't understand the material. A student who is tutoring others in a cooperative learning situation in mathematics may refine some of his or her basic skill processes, but this type of situation does not provide the level of challenge necessary for the most advanced types of involvement in the subject (p. 34).

It is currently unclear how, or even if, apparently desirable instructional strategies such as cooperative learning can be implemented in the best interest of gifted students. The same might be said for the Middle Schools Movement.

The focus of the *middle school concept* would seem to include the following elements:

1. A strong affective component, with teams of students and teachers organized to foster a sense of belonging.

2. An interdisciplinary focus on content.

3. A curriculum emphasizing inquiry, exploration, and discovery.

4. A schedule characterized by flexibility (George, 1988).

Many middle school programs also place emphasis on heterogeneous grouping and, once again, raise the question about whether the gifted students can be sufficiently challenged in these settings. However, Sicola (1990) sees no reason why special programming for gifted students cannot form a component of the middle schools program. She believes that honors courses, independent study, magnet schools, and other well-established programs can be effectively integrated with the middle schools concept to provide an effective education for gifted students.

Current reform movements rarely mention the special needs of gifted students in their goals or objectives. Unless rigorous efforts are made to integrate the best of gifted education with these movements, we will likely see a major erosion of gifted programs and an unintentional "dumbing down" of the school program for advanced students.

Issue: Creativity

There has been a major effort, in special programs for gifted students, to emphasize the stimulation of creative thinking. While this effort has extended across the nation in gifted programs for three decades, it is still unclear what constitutes "creativity" (Is it a product? Is it a process?) or how best to enhance it. However, the theoretical models of Guilford (1967) and Bloom, et al.(1956) have had a major influence on schools' attempts to stimulate creative thinking. The translation of the Guilford model into school-appropriate experiences has been the significant contribution of Paul Torrance (1977) and Mary Meeker (1969). Much of that work has focused on the nurturing of

divergent thinking, or improving the gifted student's intellectual fluency, flexibility, and originality.

While there is substantial evidence that direct training can improve student production of the number and originality of ideas (Mansfield, Busse, & Krepelka, 1978), there remains a question as to whether such training will result in improved creative behavior in adults. The study of creativity in adults focuses more upon personality traits: the willingness to take risks, a strong ego that enables the individual to go against the norm or social tide, and a willingness to persist in the face of difficulties in their area of particular interest (Barron & Harrington, 1981). Still, there is a continued emphasis on student mastery of strategies for attacking complex problems; and approaches such as the creative problem-solving model of Parnes (1981) and the problem-finding concepts made popular by Getzels & Csikzentmihalyi (1976) would seem to have some validity to them.

While creativity has often been thought of as an exclusively internal process, there is now opinion that creative products may well result from a complex interaction between a particular environment and internal thought (Greeno, 1989). Thinking, while obviously an internal process, must operate within a responsive social context which can be influenced positively by carefully devised educational environments (Gallagher, 1991).

Just as society is ambivalent about how it views giftedness, it is also unsure about creativity. Tannenbaum (1983) described the mixed feelings of modern society regarding human creativity as follows:

> On the one hand, the public has demonstrated an almost insatiable demand for newness in the arts, sciences, and humanities, and has, consequently, lavished encouragement and renown upon people with great ideas. On the other hand, it has manifested a tenacious will to remain culturally conservative and often views the creative spirit with suspicion and disdain (p. 4).

Issue: Underserved Populations

Cultural Differences

Until recently, one of the most embarrassing secrets in the education of the gifted was the differential prevalence of ethnic and racial groups in identification and placement in special programs. The embarrassment stemmed from the inappropriate assumption that intelligence tests measured only genetic potential, and that such a difference in proportions would then suggest superiority or inferiority in native ability for such groups—an intolerable political problem.

While the objective fact was that there were fewer minority students being identified through traditional methods (except for Asian-Americans), the reasons for such low numbers were not universally agreed upon. There are two major hypotheses proposed to explain underrepresentation of minority populations:

> 1. The instruments and procedures used for identifying gifted students are flawed and biased against those students who are not middle class, white Americans.

Such an argument rests on the proposition that there can be no true differences in levels of aptitude at the time of assessment; therefore, any group differences that are found are the fault of the measurement. Further, the choice of gifted students from the mainstream culture for special educational programs is an attempt—some may even see it as deliberate, to limit the opportunities of children from some minority groups (Richart, 1985). The intelligence tests that have been used by the schools may more aptly be referred to as academic aptitude tests and their predictions of lower performance for minorities as a group have, unfortunately, turned out to be quite correct for many minority students (Mercer, 1981).

Bias of test instruments, however, needs to be demonstrated by more than group differences on the test. Just as there may be differences between ethnic and racial groups on athletic aptitude or musical aptitude, based upon greater opportunity and experience, so the same may be true of academic aptitude. The excellent performance of Asian-Americans, on both tests and school performance, tends to indicate that there are factors operating here that go beyond simple differences from the mainstream culture (Zappia, 1989). Nevertheless, the current style of identification tries to cope with this issue by adopting multiple criteria for giftedness, of which IQ tests are only one.

2. These differential prevalences reflect differential opportunities and limited practice on key elements of intellectual development.

There is considerable evidence to support the importance of the role that practice and experience plays in later measures of aptitude. If we can extend the general principle that "we are good at what we practice" to include "we avoid tasks where we perceive ourselves as not competent and situations where we are not comfortable," then it is not hard to see how, progressively, some minority students who may have begun life with equal aptitudes with their majority group age-mates will fall further and further behind on measures of academic proficiency and aptitude. Such evidence of differential prevalence, the argument continues, does not speak to differences in native ability so much as it does differences in the availability of responsive environments to crystallize an individual's native ability.

The most reasonable position on cultural differences, given current knowledge, is to accept explanation #2—different experiences and opportunities are what makes the difference—and operate as though it is true. The obvious step to be taken, then, is early and intensive provision of experiences that can help talented minority students to more fully develop their potential more fully.

The current view in child development is that there is a complex interaction pattern between genetics and environment, as shown in figure 1, that tends progressively to facilitate or inhibit the full development of youngsters with special talents (Plomin, 1989; Weinberg, 1989). As noted in figure 1, the development of symbolic systems such as language lies at the heart of more sophisticated intellectual development. Children who have been raised in an atmosphere where language is not extensively used, or in which an adult is not present to interact with the child, will quite probably have limited language development. This, in turn, will lead to less than full potential academic performance and, possibly, to a consequent lack of interest in school and school-related activities. The combination of all of these progressive interactions, then, could result in a lower score on intelligence or aptitude measures than would have been likely under more optimum conditions.

Just as a series of unfavorable environmental forces can result in less favorable educational and psychometric outcomes, so can the opposite be true. If the family is encouraging and supportive, if the learning environment is superior, then there may be an opportunity for students from particular groups to show a greater than average prevalence of high ability or aptitude (Bloom, 1985; Olzsewski, Kulieke, & Buescher, 1987). Higher than expected prevalences of being identified as gifted would appear to be the case with another minority group, children from Asian families. The high prevalence of Asian-American children in programs for gifted students, as well as in other areas of performance such as music, arts, etc., has been a reminder of the attention paid, in many Asian-American families, to the importance of education and of setting high expectations for children's performance. Such departures of prevalence from normal expectations appear to demonstrate the power of the family and the culture to influence—both positively and negatively—the long-term performance of students. Such findings have stirred

major efforts to develop procedures or instruments that would help identify underserved gifted minority students (Baldwin, 1987; Sisk, 1989; Frasier, 1987).

Maker (1989) summarized program suggestions for minority students from a wide variety of specialists as follows:

1. Identify student strengths, and plan a curriculum to develop those abilities.

2. Provide for the development of basic skills and other abilities that students may lack.

3. Regard differences as positive, rather than negative, attributes.

4. Provide for involvement of parents, the community, and mentors or role models.

5. Create and maintain classrooms with a multicultural emphasis (p. 301).

These principles represent mainstream thinking on programs for minority students and reflect an interest in integrating minority gifted students with the larger society (Sparling, 1989). In some quarters, however, there is advocacy to maintain a separate cultural identity for Hispanic or Native American students, and this would, naturally, result in a very different program and curriculum (Kitano, 1991).

Gifted Girls

One of the major groups of the underserved gifted is gifted girls who are traditionally less represented in programs for gifted and talented, particularly in programs in mathematics and science (Stanley & Benbow, 1986). The traditional role of women to be childbearers and stay in the home has clearly been modified, but the new freedom has not yet resulted in remarkable change. Reis & Callahan (1989) point out how far society needs to progress:

> Why, for example, are less than 2 percent of American patents held by women? . . . Why are there only two females in the United States Senate, one female on the Supreme Court, and one female cabinet member? Why do women constitute less than 5 percent of the House of Representatives, own only 7 percent of all businesses in the country . . . occupy only 5 percent of executive positions in American corporations, and hold none of the leading positions in the top five orchestras in the United States? (p. 101-102)

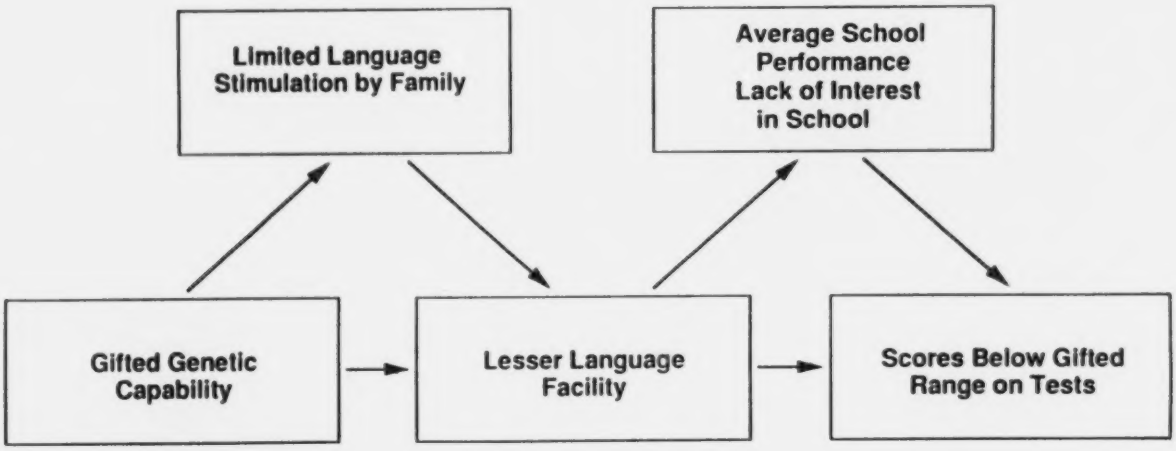
Another telling statistic is that though women represent 51 percent of the population, they comprise only 11 percent of the scientists and engineers in the United States, reflecting the vocational and societal tilt against women in these occupations (Schmiedler and Michael-Dyer, 1991). Some of the suggestions for changing this situation have included programs that exclude boys, at least until gifted girls have gained a much needed confidence in their own abilities (Rand & Gibb, 1989). Girls with outstanding potential would seem to be the largest untapped resource in our country.

Gifted Handicapped

The idea that gifted students could also have specific handicapping conditions has been a relatively recent one. The visibility of outstanding scientists such as Stephen Hawking—a quadriplegic—and a variety of gifted individuals with presumed learning disabilities, such as Einstein, Rockefeller, Churchill, etc., has opened new areas of investigation and special education (Whitmore & Maker, 1985).

The majority of recent attention has focused upon gifted learning-disabled students who have some type of information processing deficit which interferes with learning, despite superior general aptitude. Coleman (1992), in a study of such students, found that gifted/learning-disabled (LD) students showed differences from LD students of

Figure 1.— Underserved Gifted Sequence of Development


Limited Language Stimulation by Family
Average School Performance Lack of Interest in School
Gifted Genetic Capability
Lesser Language Facility
Scores Below Gifted Range on Tests

(After, Sameroff, 1986)

average ability in their use of coping strategies designed to deal with academic problems. The gifted-LD students used more "planful problem-solving" to overcome barriers, while the average aptitude group reported more "escape," "avoidance," "distancing," and "helplessness." Nevertheless, the direct instruction of coping techniques to meet common school challenges, such as taking exams, would seem to be a clear need for all students with learning disabilities, regardless of ability level.

However, we do not yet know the degree to which visual and auditory disabilities disguise the intellectual aptitude of children, and a new sensitivity to special talent is being sought from educators with expertise in these fields.

Underachievers

Most of our knowledge of underachieving students comes from the longitudinal studies of Terman and his associates (Terman & Oden, 1947) and from a variety of case studies and clinical study reports (e.g., Rimm, 1991). Such students, predominantly boys, seem to have a variety of self-concept and family-conflict problems which carry over into ineffective academic strategies.

Some recent attempts to intervene educationally with underachievers have proven successful (Whitmore, 1980; Butler-Por, 1987). The amount of time needed for such remediation to become effective, however, is extensive and confirms the notion that chronic underachievement is a complex syndrome of behaviors that is very difficult to change once well-established.

The gifted underserved clearly represent a major loss to our community and national potential, and the strategies for recovering that loss is different for each of the subgroups.

Issue: Accountability

The question of the effectiveness of gifted programs has been posed quite often (Callahan, 1983). One approach has been to measure the effectiveness of ability-grouping—part of many programs for gifted students. Articles running into the hundreds have addressed ability-grouping (see Slavin, 1990a). Common evaluation design flaws, however, have prevented us from making more definitive statements about most program effectiveness. Callahan and Caldwell (1986) identified four specific flaws that tend to invalidate a large proportion of the evaluation papers on gifted students:

1. The use of standard achievement tests in such evaluations underestimates the knowledge and understandings of gifted students.

2. The use of standard measures will not reveal the mastery of the specialized content that is at the heart of special programs for gifted students.

3. A major curriculum emphasis in many gifted programs is developing problem-solving, problem-finding, and creativity skills; yet, few evaluation efforts have included any attempt to measure these key processes.

4. Few of the evaluation programs take into account the personal views of the students themselves. (When students are surveyed, themes of excruciating boredom in regular programs come through quite clearly.)

A recent meta-analysis on ability-grouping and gifted students was completed by Kulik & Kulik (1991). They summarized their findings as follows:

- The evidence is clear that high aptitude and gifted students benefit academically from programs that provide separate instruction for them.
- Academic benefits are positive, but small, when the grouping is done as a part of a broader program for students of all abilities.
- Benefits are positive and moderate in programs that are especially designed for gifted students.
- Academic benefits are striking and large in programs of acceleration for gifted students (p. 191).

It would appear that merely grouping gifted students together, without at the same time changing the content and the instructional strategies used with them, will not yield much in the way of benefits. On the other hand, a well-constructed program that brings gifted students together and provides them with an intellectually stimulating environment, in addition to giving them the opportunity to use their problem-finding and problem-solving abilities, seems to yield very tangible results.

Policy Issues and Gifted Education

Public policy consists of rules and standards by which society allocates its scarce resources. The education of gifted elementary and secondary students remains a policy issue debated at local, state, and federal levels. In post-secondary education, however, major resources are set aside for graduate and professional programs with little protest (Reis, 1989).

Equity versus Excellence

For the past three decades, the nation has struggled to reconcile two significant values of American society within the American educational system. The first of these is *equity*: the promise that all children shall receive an equal opportunity for education. The second value is *excellence*: that full attention and stimulation will be given to the very best of the students—those who demonstrate their ability and superiority in the educational domain.

The Fairness of It All

One of the most elusive, but seemingly most powerful, inhibitors of programs for gifted students involves the value issues of *fairness* and *equity*. Many people ask, "Is it really fair for some children to have so much ability while others have so little? Is it fair for us to be giving special education opportunities for students who already have so much going for them? Isn't this type of special educational programming akin to giving tax breaks to the rich?"

Such concerns seem to be made worse by the additional realization that minority groups, with the significant exception of Asian-Americans, have a lesser presence in programs for gifted students than in proportion to the general population. This underrepresentation enhances the image that programs for gifted are really designed as "special privileges for special people."

The only answer to all of these value statements is that, "Of course, it *isn't* fair." Abilities are not equally distributed, nor are the opportunities to enhance aptitudes that are present in the child. But this isn't the only thing unfair in the world. It is unfair that so many people live in poverty and in disease-ridden environments while others live in opulent wealth. It is unfair that we continue to have wars and many people are needlessly killed. It is unfair that some countries have continuous droughts while others prosper with good growing seasons for their crops.

But who among us will do something constructive to combat this massive unfairness? The record is clear: those students that we call gifted will have the best chance, when properly educated, to do something about the array of social problems facing the next generation. Just as we support medical schools and law schools (since we all may need a good doctor or lawyer someday), our enlightened self-interest should argue for a solid preparation for the most talented of our students.

The National Educational Goals

This ambivalence, or attempt simultaneously to achieve two apparently competing goals of equity *and* excellence, is clearly seen in the national educational goals established by the Governor's Task Force on Education. These goals (see table 1) are targets established for achievement by the year 2000. Goals 3 and 4, (requiring high competences in content fields and promising top performance in math and science), represent a major emphasis on excellence and would be highly relevant to gifted students. Goals 1 and 2, in contrast ("that all children will start school ready to learn" and, "that 90 percent of the children will graduate from high school"), represent efforts at achieving equity (America 2000).

There are strong threads in our cultural heritage inclining us toward *equity*. Many of our ancestors broke away from an elitist society in Europe. Our most treasured documents, the Declaration of Independence and the Constitution, take great pains to ensure that power will not once again reside in the hands of a small elitist group. People are loathe to do anything that they believe would strengthen elitist tendencies.

The drive for excellence, in contrast to equity, seems based upon societal needs. In the modern, post-industrial, information society into which we are developing, the need for large numbers of well-educated and extensively prepared students is manifest, as is the need for a large pool of creative scientists, managers, communicators, etc. The education of gifted students is clearly a high priority for such a society. Unfortunately, we are now receiving pessimistic messages about American students compared to students of other advanced nations.

A series of comparisons of American students with students from other countries (Jones, 1989; Crosswhite, et al., 1985) has also revealed the lamentable state of our students' learning—and has concerned those current leaders who realize that *student* noncompetitiveness in the educational scene will likely translate into *adult* noncompetitiveness in the economic and political world in the near future.

There have always been educators who have eloquently urged attention be paid to gifted young-

Table 1.—National Education Goals

1. By the year 2000, all children in America will start school ready to learn.
2. By the year 2000, we will increase the percentage of students graduating from high school to at least 90 percent.
3. By the year 2000, American students will leave grades four, eight, and twelve having demonstrated competency over challenging subject matter, including English, mathematics, science, history, and geography. . .
4. By the year 2000, U.S. students will be first in the world in science and mathematics achievement.
5. By the year 2000, every adult American will be literate and possess the knowledges and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.
6. By the year 2000, every school in America will be free of drugs and violence and offer a disciplined environment conducive to learning

America 2000 (1990). Note: The Goals 2000: Educate America Act, signed into law March 31, 1994, added a goal for parental involvement and a goal for professional development.

sters because their needs required it (see Hollingworth, 1942), but it has been the economic arguments that have generally impressed decision-makers to pay special attention to these students.

If policy represents the rules and standards by which we agree to allocate scarce resources to specific needs and persons, then the emergence of public policy related to gifted children becomes a particularly significant topic. Since special education provisions for gifted students cost more than the average costs of education (though significantly less than special education for other exceptional children), then the question becomes, "Where will such resources come from?"

Every state has some type of special program or designated resources related to the education of gifted students. In the case of almost half the states, the extra resources for such programs are allocated, by the state, to local districts through general legislation concerning exceptional children for that state. In other states, resources reimbursing local school districts or the assignment of state leadership personnel to gifted education are made available through a variety of state education authorities.

The major thrust for special programs underwritten by state education departments came largely on the heels of the Sputnik challenge of the late 1950s. Many states, seeing the United States falling behind in key technological areas, wished to strengthen the educational output of the United States and saw improving programs for gifted students as one vehicle to that goal. Extensive curriculum reform efforts, largely stimulated by major projects funded by the National Science Foundation, as well as by the U.S. Office of Education, proved an advantage for gifted students since such projects placed an emphasis upon high level conceptualization and the learning of science by doing science (Bruner, 1960; Goodlad, 1964).

The involvement of the federal government in specific policy for gifted students was delayed another decade, however, primarily due to the general reluctance of Congress to get involved in education, which up to then had been seen as primarily a state responsibility. The overwhelm-

ing needs of economically disadvantaged students helped propel federal action to aid education and to include children with handicaps as part of the total federal effort. These provisions led the way for subsequent legislation for other groups of school children.

As seen in table 2 (Reis, 1989), there have been a variety of federal efforts devoted to special concerns for gifted students, beginning in 1958 with the National Defense Education Act. Predominant among those initiatives have been the 1969 bill which called for a major study of the education of the gifted student in the United States and a report to Congress. These initiatives spawned the Marland definition of gifted students which has been copied by many of the states.

In 1973, an Office of Gifted and Talented Education was established in the U.S. Office of Education, and small sums of money were made available for research and demonstration projects. In 1983, *A Nation at Risk*, the noted report of the National Commission on Excellence in Education, indirectly aided programs for gifted students by sounding an alarm for programs of excellence.

But by far the most significant of the federal actions has been the passage of the Jacob K. Javits Gifted and Talented Students Education Bill in 1987, reestablishing a federal office, providing grants for training and demonstration projects, and establishing a National Research Center on the Gifted. A major theme of the Javits program is the discovery and stimulation of underserved and undiscovered gifted students. Meanwhile, the collective state investment in gifted program efforts now exceeds over 250 million dollars annually. It seems clear that concern for the economic viability of the country is fueling a gradually increased effort and support for state and federal responsibility for greater stimulation of excellence in our schools. (See section on National Goals.)

Future Research Directions

The earlier parts of this paper have identified some of the research investigations that could be carried out to help us understand the gifted child more thoroughly, to experiment with differing educational techniques and settings, and to understand the role that society plays in educating these students. Horowitz and O'Brien (1985) developed a research agenda for the gifted which included three major areas of investigation.

Understanding Intellectual Processes

This research would require investigations of knowledge acquisition, storage, and retrieval, as well as problem identification and solution. Efforts to describe these information-processing mechanisms should extend across the lifespan.

Differentiating Social and Personality Characteristics

Variables of socialization, motivation, energy, and personal perceptions appear to influence the degree to which intellectual gifts are fully realized. Research in these areas would include investigations that could determine why some highly intelligent individuals lead concomitantly creative and productive lives whereas others do not. Again, it would be important to look at such characteristics across substantial periods of time.

Assessing Educational Strategies for Gifted Students

We need to determine what kinds of programs most benefit what kinds of gifted and talented children so that we can better target our scarce educational resources. We should support programs to the extent that they provide evidence that they make a real difference.

The newly established National Center for Research on the Gifted and Talented will, undoubtedly, develop a research agenda of its own (Renzulli, 1991). The following represent areas of investigation of special interest to the author of this report.

Table 2.—Federal policy and legislation regarding the gifted

1958	Following the Soviet Union's launching of the first satellite (Sputnik) in 1957, Congress declared an educational emergency and enacted the National Defense Education Act (P.L. 85-864), which allocated funds to develop potential for talent in math, science, and foreign languages.
1965	The Elementary and Secondary Education Act (P.L. 89-10) passed in Congress; Titles III and V related to the development of model gifted programs and the hiring of state-level gifted education personnel.
1968	President Johnson established a White House Task Force on the Gifted and Talented; the formal report was never published, but a 50-state survey was completed.
1969	Federal bills were introduced in both houses of Congress that would have established a federal definition, provided support to states to expand programs, and directed the U.S. Commissioner of Education to conduct a study on the needs of the gifted.
1970	Federal bills introduced in 1969 were included as section 806 of the Elementary and Secondary Educational Amendments of 1969 (P.L. 91-230), which mandated a report to Congress on the status of and need for programs for the gifted.
1971	Sidney P. Marland, Jr., U.S. Commissioner of Education, submitted to Congress the report mandated by P.L. 91-230. *The Marland Report* (1972) included a national assessment of educational programs for the gifted and talented and a federal definition of gifted and talented students.
1973-1974	Several federal bills introduced in both houses of the 93rd Congress resulted in the establishment of an Office of Gifted and Talented in the the U.S. Office of Education, annual appropriations for the office, grants for training, research and demonstration projects, grants to state and local agencies, and the establishment of a national clearinghouse related to gifted.
1975	Only $2.5 million was appropriated for federal efforts; funding remained at this level for several years.
1977-1978	Federal bills supporting the education of the gifted and talented were again introduced in both houses of Congress. The proposed Gifted and Talented Children's Education Act (P.L. 95-561) passed as Title IX-A of the Education Amendments of 1978.
1978-1980	Appropriations increased from $3.8 million to $6.2 million in 1980. President Carter supported continuing $6.2 million funding.
1981	Congress provided $5.6 million in fiscal year 1981. The consolidation and inprovement provisions of the Omnibus Budget Reconciliation Act of 1981 consolidated 20 programs into a Chapter 2 block grant for state and local educational agencies; funding decreased 42% for programs.
1982-1983	The National Commission on Excellence was established; hearings were held around the country on six aspects of public education including gifted education; the National Business Consortium was established to put business and education into a partnership for the promotion of education of the gifted.
1983	The report of the National Commission on Excellence in Education, titled *A Nation at Risk: The Imperative for Education Reform*, was published; education of the gifted was mentioned in several sections.
1983-1984	In the 98th Congress, the Senate established a caucus on children that explored (among other issues) the impact of federal budget cuts on highly talented children, especially special populations.
1987-1988	Both houses of Congress overwhelmingly passed virtually indentical bills regarding education of the gifted. The Senate passed House Omnibus Bill, S. 373. The House bill was also included in the House Omnibus Bill, H.R. 5. Funding of $7.9 million was appropriated for the reestablishment of a Federal Office of Gifted and Talented, for grants for training and demonstration projects, for grants to state and local agencies, and for the establishment of a National Research Center.

Note: Data obtained from DeLeon and Vandenbos (1985), Radcliffe (1987, 1988), and Tannenbaum (1983).

Information Processing

One of the most potentially fruitful lines of investigation seems to be the continuation and extension of various investigations on information processing in human beings, particularly children. There has been little written about the "executive function" or the control mechanisms by which we pay attention, or how we choose between various cognitive strategies or decide on our mode of intellectual expression (Borkowski & Kurtz, 1987).

Decision-making is a poorly understood information processing function and one that could be studied fruitfully in young children where it can be seen in a more observable process than in the complex network of forces affecting decision-making in adults. One particular element of the executive function operation-problem-finding, or of choosing the most significant problem to be attacked—is an important act not only for researchers, but also for politicians, and artists, and parents. The right choice can lead to significant findings or products; the wrong choice can lead to months, or even years, of wasted effort. Obviously, how this process of decision-making works and how it can be enhanced is a key area of investigation.

Family Support

We now have a significant body of investigation demonstrating the importance of family encouragement and support for the full development of the intellectual capabilities of talented youngsters. One line of research would be to investigate how to provide support for families who are not now encouraging their talented youth, in the hopes that they would begin to play this role more assertively. Another line of investigation would be to examine whether other persons in the environment of the child (friends, relatives, teachers, etc.) can provide the type of support and encouragement necessary to promote full development of these talents, if the parents are, for some reason or other, unable to provide it.

School Program

When we attempt to evaluate the impact of a particular school environment, such as the resource room (Vaughn, Feldhusen, & Asher, 1991), or ability-grouping, or a particular instructional method such as creative problem-solving, we can be confused by the range and diversity of our results. It is clear that resource rooms work well sometimes, and not well at all other times. The Enrichment Triad Model is a great success in some places, and a disappointment in others. Merely placing youngsters in a particular setting, or providing them with a particular set of activities, does not necessarily lead to success. Therefore, it would seem most important to document, in some detail, what works.

If a resource room is doing an outstanding job by all accounts, then the particular way in which it is operating needs to be carefully analyzed and studied to understand the ingredients of this recipe for success. If an honors course in philosophy is achieving visible and tangible success, then the nature of that total setting needs to be examined. Is success dependent upon a creative teacher, or are there other elements in the situation that need to be recognized? By studying the staffing patterns, the history, the processes, and the students, it may be possible to emerge with some better idea of what the recipe for success is within a given structure or program.

A second area of concern in the school program is the nature of the alternative curriculum for gifted students. Much of the curriculum that is presented to the gifted student goes beyond the regular program. Currently, this alternative curriculum is designed on an ad hoc, program by program, basis. Should there be a scope and sequence established for programs for gifted students? Should there be a set of specific curriculum goals for history, or language arts, or economics, for gifted students? Deliberate attempts to develop sophisticated curricula should be supported and encouraged as a means for moving toward some more organized set of program activities and cur-

riculum options for students at various educational levels.

Societal Interests

Many of the adaptation problems of gifted students and gifted adults come from the love-hate relationship that such talent generates in society at large. Socrates, Galileo, and many others have demonstrated what happens to the talented person who runs afoul of society or power groups within a society.

It seems reasonable to suspect that envy and dislike have always been part of the price that talented people pay for the expression of their talent. With Bach or Verdi, this was probably not terribly important since they needed to please only a relatively few people in order to continue doing what they wanted to do.

In a democracy, where large numbers of people have a "say" in what happens, it becomes increasingly important to understand societal ebbs and flows in attitudes toward gifted students and adults. What are the dynamics of societal concerns and reservations about such individuals? Is there fear that gifted individuals will use their abilities to gain control over others? How can such feelings be counteracted?

These are some possible topics for investigation. Funds have not always been available to address these issues seriously, however, and doctoral dissertations alone cannot be relied upon to explore and offer answers to some of the most complex of our educational problems.

Summing Up

The last quarter of a century has seen a quantum leap in our understanding of the student we refer to as gifted or talented. Many myths have been dispelled. There has been an increased level of sophistication regarding the nature of high intelligence, as well as considering the educational methods that can enhance its development. As more has become known about giftedness, there has been a greater emphasis on some of the subgroups with special needs; that emphasis will certainly continue into the near future. One thing, however, that clearly has not changed much is the ambivalent societal view of how giftedness and gifted individuals should fit into a democratic society.

Society may continue to view gifted behavior as an uncomfortable presence, as well as a great resource. However, it is increasingly clear that we deny its presence in our youth at our own national peril. We are neither so rich nor so blessed with natural resources that we can, as a nation, afford to ignore educationally the human potential in the minds of our gifted students.

Our generation will place its signature upon the poetry, the science, the art, and the business prosperity of the next generation, in large measure, by how enthusiastically we respond to the educational challenge of our gifted and talented children.

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